

RATYNSKIY, V.; IGNAT'YEV, K.G.; KIRPICHNIKOV, I.V.; BELYAYEV, F.N.;  
SUKHORUCHKIN, S.I.

Gamma-ray spectra produced in resonance neutron capture. Zhur.  
eksp. i teor. fiz. 45 no.4:870-874 0 '63. (MIRA 16:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki.

IGNAT'YEV, K.G.; KIRPICHNIKOV, I.V.; SUKHORUCHKIN, S.I.

Spin dependence of the density of resonance levels. Zhur. eksp.  
i teor. fiz. 45 no.4:875-881 0 '63. (MIRA 16:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki.

ACCESSION NR: AP4015557

S/0089/64/016/002/0110/0119

AUTHOR: Ignat'yev, K. G.; Kirpichnikov, I. V.; Sukhoruchkin, S. I.

TITLE: Measurement of Eta and of partial cross sections of U sup 235 and Pu sup 239 isotopes for neutrons of resonant energies

SOURCE: Atomnaya energiya, v. 16, no. 2, 1964, 110-119

TOPIC TAGS: total cross section, partial cross section, U sup 235, Pu sup 239, radiation capture cross section, fission cross section, nuclear resonance

ABSTRACT: The authors investigated the energy dependence of partial cross sections (for fission and radiation capture) in a wide energy range, 0.03 to 20 ev for U<sup>235</sup> and 5 to 100 ev for Pu<sup>239</sup>, with a "blinking" cyclotron beam. The method of measurement is described and the results are given in tables and diagrams. Numerous resonances had been found. A detailed analysis of the results is given in other papers (see Atomnaya energiya, 1964, v. 16). The essential conclusions of the work are as follows: (a) there is a correlation of the

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ACCESSION NR: AP4015557

amplitude signs with the reduced resonance widths; (b) the fission width depends strongly on the spin. "The authors are grateful to V. V. Pavlov, V. V. Rotman, A. N. Soldatov, and A. D. Kharitonov for help with measurements, and to the members of the mathematical section of the Institute for Theoretical and Experimental Physics, S. P. Borovlev and L. I. Panov." Orig. art. has: 11 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 22Apr63

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE: PH

NO REF SOV: 005

OTHER: 012

Card 2/2

ACCESSION NR: AP4020326

S/0089/64/016/C03/0211/0218

AUTHOR: Kirpichnikov, I. V.; Ignat'yev, K. G.; Sukhoruchkin, S. I.

TITLE: Interference effects in fission cross sections

SOURCE: Atomnaya energiya, v. 16, no. 3, 1964, 211-218

TOPIC TAGS: interference effect, fission cross section, U sup 235, Pu sup 239, spin resonance, plutonium, uranium

ABSTRACT: An interference analysis for a fission cross section of isotopes  $U^{235}$  and  $Pu^{239}$  with slow neutrons was conducted. Relative signs of amplitude of reduced widths and degree of interference for highly interfering levels are obtained. A correlation of amplitude signs is discovered. The number of effective open fission channels is found near unity for  $Pu^{239}$  and near two for  $U^{235}$ . Conclusions are made on the spins of a series of plutonium levels and relative spin resonances of  $U^{235}$ . The values of average fission level widths with different spins are obtained. "In conclusion, the authors are sincerely grateful to S. P. Borovlev and L. I. Panova for help in preparing measurement results." Orig. art has: 2 tables, 3 figures, 4 formulas.

Card 1/2

CONFIDENTIAL

Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear  
Structure. Atom. energ. 19 no.3:316 S '65.

(MIRA 18:9)

L 00494-66 EWT(m)/EPF(n)-2/EWA(h)

ACCESSION NR: AT5022107

UR/3138/65/000/347/0001/0027

AUTHOR: Sukhoruchkin, S. I. 44.55

TITLE: Single particle effects in neutron physics and fine structure of nuclear masses. 3. (correlations in positions of neutron levels)

SOURCE: USSR. Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii. Institut teoreticheskoy i eksperimental'noy fiziki. [Doklady], no. 347, 1965, Odnoshastichnyye efekty v neytronnoy fizike i tonkaya struktura yadernykh mass III; korrelyatsii v polozheniyakh neytronnykh urovney, 1-27

TOPIC TAGS: neutron spectroscopy, nuclear resonance, nucleon interaction

ABSTRACT: Neutron scattering cross-section data taken from I. V. Gordeyev, D. A. Kardashev, and A. V. Malyshev (Yaderno-fizicheskiye konstanty. Spravochnik, Moscow, 1963) are analyzed for intermediate and heavy nuclei. The author continues previous work (see S. I. Sukhoruchkin. Odnoshastichnyye efekty v neytronnoy fizike i tonkaya struktura yadernykh mass II. Preprint ITEF 1965) in examining neutron resonances and binding energies. Dividing energy into equal intervals (10 or 100 ev) and determining the position  $E_0$  of the resonance with the largest reduced neutron width  $\sqrt{\Gamma_n^0}$ , it is noted that these resonances tend to group (see Fig. 1 on the Enclosure). This

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ACCESSION NR: AT5022107

effect is also observable if one plots  $N(E_0)$ , the number of nuclides in the periodic table with maximum  $\int_n^{E_0}$  in a given interval specified by  $E_0$ , as in Fig. 2 on the

Enclosure. The motivation for this analysis is to discover fundamental properties of single nucleons by observing correlations in the behavior of aggregates which are ascribable to the internucleon potential. It is concluded that there is a substantial correlation of level positions from nucleus to nucleus and that these correlations, not derivable from present theories, should be traceable to fundamental quantum mechanical single particle properties. The author thanks V. N. Andreyev for discussing the work, and K. G. Ignat'yev, S. M. Kalebin, and Yu. P. Popov for a number of communications. Orig. art. has: 10 graphs and 1 table. 44,55

ASSOCIATION: none

SUBMITTED: 09Apr65

ENCL: 02

SUB CODE: NP

NO REF SOV: 017

OTHER: 020

Card 2/4



L 00494-66  
ACCESSION NR: AT5022107

ENCLOSURE: 01

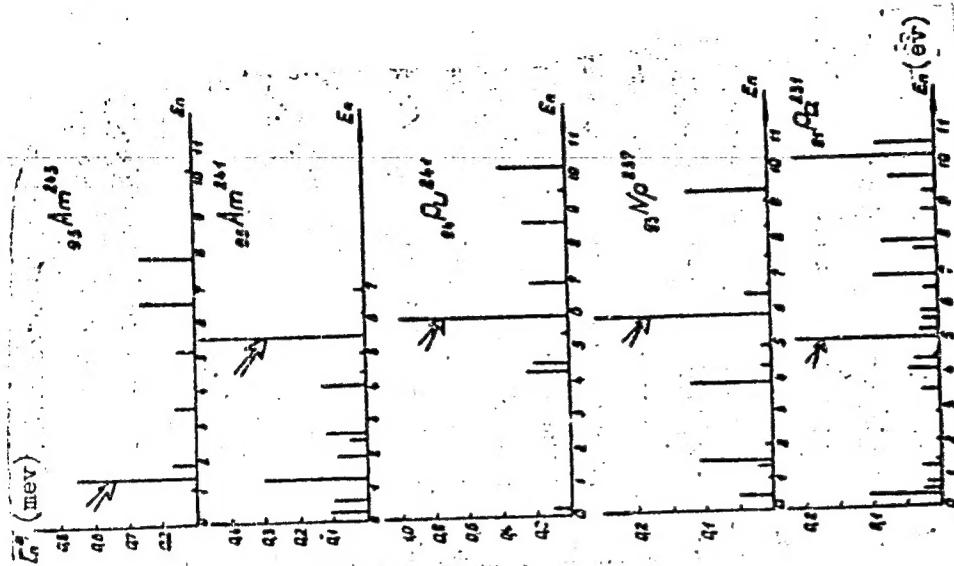


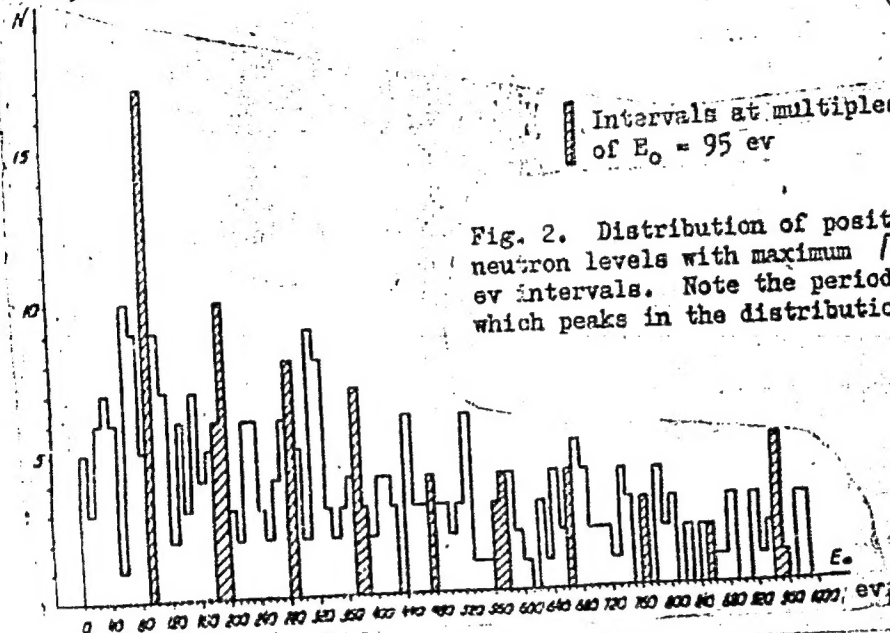
Fig. 1. Neutron level widths in heavy nuclei ( $\Gamma_n^0$  vs.  $E_0$ ). The arrow points to the level with largest  $\Gamma_n^0$  for each nuclide.

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L 00494-66

ACCESSION NR: AT5022107

ENCLOSURE: 02



Card 4/4

IGNAT'EV, K.G., KIRICHENIKOV, I.V.; SOLDATOV, A.V., GURNOV, N.N., S.I.;  
KRETSKOV, A.I.

Improvement of the neutron-velocity selector and measurement  
of the first resonances in copper and zinc. Prih. i tekhn. ekzp.  
10 no. 3858-60 S-0 '65.

(MIRA 1961)

1. Institut eksperimental'noy i teoreticheskoy fiziki Gosu-  
darstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR,  
Moskva. Submitted Sept. 20, 1964.

ACC NR: AP7007582

SOURCE CODE: UR/0039/66/021/002/002L/0092

AUTHOR: Leypunskiy, A. I.; Kazachkovskiy, O. D.; Shikhov, S. B.; Yurova, L. N.;  
 Gerasimov, V. M.; Ormelev, A. N.; Sukhoruchkin, V. K.

NOTE: none

TITLE: Use of nonuranium dilutors of plutonium in large, fast breeder reactors

PERIOD: Atomnaya energiya, v. 21, no. 2, 1966, 84-92

TOPIC WORDS: breeder reactor, fast reactor

UDC CODE: 621.372.5

ABSTRACT: The physical characteristics of fast breeder reactors with cylindrical and annular active zones have been studied, together with the characteristic of infinite lattices of large fuel elements located in a heterogeneous manner within the material of the breeder zone. The paper presents in tabular form the results of theoretical calculations, discusses the influence of  $Pu^{240}$  and  $Pu^{241}$ , describes the change in reactivity during the irradiation process, and shows the results of investigation of the sodium temperature coefficient and the Doppler temperature coefficient. An analysis of the results shows that the use of nonuranium dilutors of plutonium in large fast reactors (with a large active volume) results in annular active zones and zones with fuel elements within the breeder composition zones having geometrical shapes which make them more economical than large cylindrical active zones. The authors thank I. S. Slesarev, A. M. Kuznetsov, M. P. Troyanov, and V. M. Marozov for their part in carrying out the research and O. M. Gerasimovaya for helping to compile information in the article. Orig. art. has: 2 figures, 3 formulas and 5 tables. [JPRS: 39,417]

Card 1/1

UDC: 621.039.526; 621.039.543.466

*Sukhoruchkin, V.N.*

**SUKHORUCHKIN, V.N.**

Theory combined with practice is the specialist's strength. Zhivot-  
novodstvo 20 no.2:87-88 P '58. (MIRA 11:1)  
(Chkalov--Stock and stockbreeding--Study and teaching)

С. В. СУХОРУЧКИН

И. 57Т45

USSR/Geol Prospecting  
Mines

Nov/Dec 1947

"Rationalization of Technology of Cutting Mines in  
Geological Prospecting Parties of 'UralCherMetRaz-  
vedka' Trust," V. V. Sukhoruchkin, 5 pp

"Razvedka Nedr" No 6

Describes method of cutting prospecting pits, drifts,  
and crosscuts developed by author.

LC

57Т45

BURMISTROV, S.I.; SUKHORUCHIN, Yu.V.

Alkylation of guanidine and its substitution derivatives. Part 1:  
Alkylation by isopropyl and cyclohexyl alcohols. Zhur.ob.khim. 33  
no.4:1227-1233 Ap '63. (MIRA 16:5)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.  
(Guanidine) (Alkylation) (Alcohols)

BURMISTROV, S.I.; SUKHORUCHKIN, Yu.V.

Salicylguanidines. Zhur.ob.khim. 33 no.4:1322-1326 Ap '63.  
(MIRA 16:5)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.  
(Guanidine)



SHKHOVNIKIN, Ya.V.; KURMISTROV, S.I.

Alkylation of guanidine and its substitution derivatives. Part 2:  
Alkylation with sec-alkanols and cyclopentanol. Zhur.ob.khim. 33  
no.6:2013-2020 Je '63. (MIRA 16:7)  
(Guanidine) (Alkylation)

BUKHARIN, A.S.; USATNIK, Yu.I.

Amperometric titration of mercury with 2,4-dinitrophenylhydrazine. Trudy  
KEMI no.16:113-124 '64 (MIRA 17:8)

SUKHORUCHKINA, A.S.; USATENKO, Yu.I.

Amperometric titration of palladium with 2,4-dithiobiuret. Trudy  
DKHTI no.16:35-42 '63. (MIRA 17:2)

USATENKO, Yu.I.; SUKHORUCHKINA, A.S.

2,4-Dithiobiuret and 1-phenyl-2,4-dithiobiuret, new reagents  
for amperometric titration. Report No.1: Acid and polarographic  
characteristics of dithiobiurets. Zhur. anal. khim. 18 no.11:  
1295-1299 N '63. (MIRA 17:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskoy institut imeni  
F.E. Dzerzhinskogo.

USATENKO, Yu.I.; SUKHORUCHKINA, A.S.

2,4-Dithiobiuret and 1-phenyl-2,4-dithiobiuret, new reagents for  
amperometric titration. Report No.2: Titration of mercury, silver,  
and gold ions. Zhur. anal.khim. 18 no.12:1447-1451 D '63.  
(MIRA 17:4)

1. Dnepropetrovskiy khimiko-tehnologicheskoy institut imeni  
Dzerzhinskogo.

KORYAKINA, T.A., kand. med. nauk.; NUGMANOV, S.N., kand. med. nauk.; SUKHORUCHKO, A.K., assistant.

Use of local anesthesia by novocaine infiltration in gynecological operations. Akush. i gin. 34 no.6:64-67 N-D '58. (MIRA 12:1)

1. Iz kafedry akusherstva i ginekologii (zav. - dots. T.A. Koryakina) fakul'teta usovershenstvovaniya vrachey Kazakhskogo meditsinskogo instituta, Alma-Ata.

(GENITALIA, FEMALE, surg.

local procaine infiltration anesth. (Rus))

(LOCAL ANESTHESIA

infiltration in gyn. surg. (Rus))

SUKHORUK, A.M., inzh.; TISHKEVICH, N.Ya.; IVANOVSKIY, N.P., inzh.; MELEKHOV, P.P., inzh.; ABDURAKHMANOV, K.A.; IVANOV, I.I., red.

[Hydrological yearbook; 1955] Gidrologicheskii ezhegodnik, 1955 g. Tom 00, vyp. 0-0, Pod red. I.I.Ivanova. Leningrad, Gidrometeor. izd-vo, 1958. 58 p. (MIRA 12:5)

1. Russia (1923- U.S.S.R.). Glavnoye upravleniye gidrometeorologicheskoy sluzhby. 2. Zhukovskaya gidrologicheskaya stantsiya (for Sukhoruk, Tishkevich). 3. Krasnosel'skaya gidrologicheskaya stantsiya (for Ivanovskiy). 4. Podgornaya gidrologicheskaya stantsiya (for Melekhov, Abdurakhmanov).

(Hydrometeorology)

ACC NR: AP6026937

SOURCE CODE: UR/0141/66/009/004/0765/0777

AUTHOR: Sukhorukov, A. P.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Generation of the second harmonic by finite-aperture beams

SOURCE: IVUZ. Radiofizika, v. 9, no. 4, 1966, 765-777

TOPIC TAGS: laser theory, ~~non-linear~~ optics, ~~second~~ harmonic <sup>function</sup> generation

ABSTRACT: G. D. Boyd et al. developed a theory of second-harmonic generation where they took into account a simplest aperture effect connected only with anisotropic crystal properties, such as an angular divergence between the beam and the wave vectors of the harmonic extraordinary wave (Phys. Rev., 1965, 137, A1305). However, in the case of a thin focused beam, an additional allowance for diffraction effects should be made. Hence, this article presents a solution, in a quasi-optical approximation, based on parabolic equations set up for slow-varying amplitudes of the interacting waves. A theory is developed of the second harmonic generation in crystals of any length, for a Gaussian beam having a diffraction divergence and for beams focused by spherical and cylindrical lenses. Analysis of the second-harmonic generation is much simpler in the case of a Gaussian beam than in the case of a Debye wave; however, the principal results obtained for the Gaussian beam hold true

Card 1/2

UDC: 621.378.33



L 31961-66 EWT(1) IJP(c) WW/GG  
ACC NR: AP6020209 SOURCE CODE: UR/0056/66/050/006/1537/1549  
AUTHOR: Akhmanov, S. A.; Sukhorukov, A. P.; Khokhlov, R. V. // 8  
ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudar-  
stvennyy universitet)  
TITLE: Self-focusing and self-trapping of intense beams of light in  
a nonlinear medium  
SOURCE: Zh eksper i teor fiz, v. 50, no. 6, 1966, 1537-1549  
TOPIC TAGS: nonlinear optics, self focusing, high power laser  
ABSTRACT: A stationary theory of the self-trapping of finite beams in  
a nonlinear medium is developed in the quasi-optical approximation.  
The calculations are performed in the geometrical-optics approximation  
as well as in the approximation in which diffraction effects are taken  
into account. The conditions under which the medium exerts a focusing  
effect on the beam are elucidated. It is found that, generally speaking,  
the self-focusing takes place with aberration. It is shown that the  
saturation of the nonlinear refraction index plays an essential role  
in self-trapping. Conditions for self-trapping of two- and three-  
dimensional beams in a nonlinear medium are determined. The size of

Card 1/2

ДУНЧЕНКО, ЯА.

Social Conditions - Poland

Along the path of enlightenment. Mol. kolkh. no. 2. '52

Monthly List of Russian Accessions, Library of Congress, August, 1952. UNCLASSIFIED.

SUKHORUKOV, Ya.

Chairman of the trade-union committee in a workshop. Sov. profsoiuzy  
6 no.4:70-74 Ap '58. (MIRA 11:5)  
(Moscow--Ball bearings) (Trade unions)

SUKHORUKOV, Ya. (Stalingrad)

Generations of conquerors. Sov.profsoliuzy 6 no.14:42-47

0 '58.

(MIRA 11:12)

(Borodin, Il'ia Fedorovich) (Eliseev, Vasilii Ivanovich)

SUKHORUKOV, Ya.

The power of a collective group. Sov.profsoiuzy 7 no.4:45-47 Mr '59.  
(MIRA 12:4)

(Voronezh--Agricultural machinery industry)

SUKHORUMOV, Ya. (Belgorod)

Important commission. NTO no.11:30-31 N '59.  
(MIRA 13:4)  
(Belgorod--Cement kilns)

SUKHORUKOV, Ya.

"The case" of Anna Kukhlevskaia. Sov.profsoiuzy 8 no.2:  
27-29 Ja '60. (MIRA 13:2)

1. Spetsial'nyy korrespondent zhurnala "Sovetskiye profsoyuzy,"  
g.Berezino.  
(Berezino--Employees, Dismissal of)

KALITKOV, A., rabochiy-obrubshchik (Stalingrad); KURUMAYEV, S. (Baku);  
MAVLYUTOVA, R.; SHCHEBLANOV, N.; SAVENKOV, P.; TALENIKOVA, R.;  
CHICHIKINA, N.; LYAMSEV, V.; ROZHENKO, N. (Krasnoyarskiy  
kray); SUKHORUKOV, Ya.; GAYDIK, P. (g.Gor'kiy); KALITKOV, A.  
(Kostroma).

Letters to the editors. Sov. profsoiuzy 17 no. 3:42-47 F '61.  
(MIRA 14:2)

1. Direktor sredney shkoly No. 17, Chelyabinsk (for Mavlyutova).
2. Predsedatel' Belgorodskogo obkoma profsoyuzov rabochikh pishchevoy  
promyshlennosti (for Shcheblanov).
3. Predsedatel' prezidiuma  
postoyanno deystvuyushchego proizvodstvennogo soveshchaniya  
tsel'kha kholodnoy shtampovki zavoda "Rostsel'mash" (for Savenkov).
4. Sekretar' Obyedinskogo raykoma profsoyuzov rabochikh.  
(Trade unions)



SUKHORUKOV, Ya.

A house with an attic. Sov. profsoiuzy 18 no.8:23-24 '62.  
(MIRA 15:4)

1. Spetsial'nyy korrespondent zhurnala "Sovetskiye profsoyuzy."  
(Garsk--Brick industry)

SUKHORUKOV, Ya.

Mikhail Berezin's predicament. Sov. profsoiuzy 18 no.13:32 J1 '62.  
(MIRA 15:6)

1. Spetskorrespondent zhurnala "Sovetskiye profsoyuzy."  
(Gorkiy Province—Disability evaluation)

SUKHORUKOV, Ya.

Useful talk. Mashinostroitel' no.6:46 Je '63.

(MIRA 16:7)

(Technological innovations)

SUKHORUKOV, Ya.

Second All-Union Congress of Scientific Technological Societies.  
Neft. khoz. 42 no.6:64-65 Je '64. (MIRA 17:8)

Translation from: Referativnyy Zhurnal, Elektrotehnika, 1957, Nr 1,  
p. 151 (USSR) 112-1-939D

AUTHOR: Sukhorukikh, B. S.

TITLE: Investigation of the Properties of Commutator Arc-Over  
and Use of the Arc Characteristics Obtained in Analyzing  
the Process of Emergence and Development of Circular Fire  
in Electric Traction Motors (Issledovaniye svoystv dugi na  
kollektore i primeneniye poluchennykh dugovykh kharak-  
teristik pri analize protsessa vozniknoveniya i razvitiya  
krugovogo ognya v tyagovykh elektrodvigatelyakh)

ABSTRACT: Bibliographic entry on the author's dissertation  
for the degree of Candidate of Technical Sciences presented  
to the All-Union Scientific-Research Institute of Railroad  
Transportation (Vses. n.-i. in-t zh.-d. transp.),  
Moscow 1955.

Card 1/1

ASSOCIATION: All-Union Scientific-Research Institute of Railroad Trans-  
portation (Vses. n.-i. in-t zh.-d. transp., Moscow)

SUKHORUKIKH, B.S., kand. tekhn. nauk

Results obtained during operational tests of new brands of electric brushes for railway electric locomotives. Trudy TSNII MPS no.172:56-70  
(MIRA 13:2)

'59.

(Brushes, Electric) (Electric railway motors)

SUKHORUKIKH, B.S., kand.tekhn.nauk

Study of the effect of various factors on the burning process  
of an electric arc originating on the collector of a traction  
motor. Trudy MIIT no. 171:15-32 '63. (MIRA 17:5)

SUKHORUKIKH, S.V.

Effect of an antitumor serum on the intensity of tumor cell  
division. Biul.eksp.biol. i med. 48 no.7:83-86 J1 '59.

(MIRA 12:10)

1. Iz laboratorii neinfektsionnoy immunologii (zav. - prof.  
I.N.Mayskiy) Instituta eksperimental'noy biologii (dir. - prof.  
I.N.Mayskiy) AMN SSSR, Moskva. Predstavlena deystvitel'ny  
chlenom AMN SSSR N.N.Zhukovym-Verezhnikovym.

(IMMUNE SERUMS - pharmacology)

(ADENOCARCINOMA - exper.)



SUKHORUKIKH, S.V.

Effect of antitumor serum on the mitotic activity of Ehrlich's adenocarcinoma when the animal organism is under physiological stress.  
Biul.eksp.biol. i med. 48 no.10:80-84 0 '59. (MIRA 13:2)

1. Iz laboratorii neinfektsionnoy immunologii (zav. - prof. I.N. Mayskiy) Instituta eksperimental'noy biologii (dir. - prof. I.N. Mayskiy) AMN SSSR, Moskva. Predstavlena deystvitel'nyy chlenom AMN SSSR N.N. Zhukovym-Verezhuikovym.  
(NEOPLASMS exper.)  
(IMMUNE SERUM pharmacol.)  
(FATIGUE eff.)

SUKHORUKIKH, S.V.

Effect of antitumor serum on the dynamics of mitotic changes in tumor and normal tissues in mice. Biul. eksp. biol. i med. 48 no. 11: 97-101 N '59. (MIRA 13:5)

1. Iz laboratorii neinfektsionnoy immunologii (zav. - prof. I.N. Mayskiy) Instituta eksperimental'noy biologii (dir. - prof. I.N. Mayskiy) AMN SSSR, Moskva. Predstavlena deystvitel'nyy chlenom AMN SSSR N.N. Zhukovym-Verezchnikovym.

(NEOPLASMS immunol.)

(CELL DIVISION)

(IMMUNE SERUMS)

SUKHORUKIKH, S. V., Cand Med Sci -- (diss) "Influence of anti-tumor serum on the mitotic activity of intertwined tumors." Mcscow, 1960. 16 pp; (Academy of Medical Sciences USSR); 250 copies; price not given; (KL, 50-60)730)

MAYSKIY, I.N.; AYRAPET'YAN, G.P.; KOZLOVA, N.A.; NILOVSKIY, M.N.;  
SUVOROVA, G.V.; SUKHORUKIKH, S.V.; KHUNDANOVA, L.L. (Moskva)

Therapeutic and cytotoxic action of antibodies and their  
role in the pathogenesis of cancer. Usp. sovr. biol. 55 no.2:  
219-238 '63. (MIRA 17:8)

SUKHORUKIKH, S.V.

Effect of serum against irradiated tumor tissue on the mitotic activity of Ehrlich's adenocarcinoma. Biul. eksp. biol. i med. (MIRA 17:11)  
57 no.3:82-85 Mr '64.

1. Laboratoriya neinfektsionnoy immunologii Instituta eksperimental'noy biologii (dir. - prof. I.N. Mayskiy) AMN SSSR, Moskva. Predstavlena deystvitel'nym chlenom AMN SSSR N.N. Zhukovym-Verezhnikovym.

ARCHIVED. V.

Effect of the intensity of tumor cell on the intensity of  
of antitumor mouse sera. Biul. eksp. biol. i med. 57 no.4:200-  
100 Ap '64. (MIRA 18:3)

L. Labov. On the pathogenesis of immunology (zav. - prof. I.N.  
Morskoy) Institute experimental'noy biologii (dir. - prof. I.N.  
Morskoy) USSR, Moskva. Submitted March 18, 1964.

SHENYUOLIAN, C.V.

Duration of the inhibitory effect of antitumor serum and  
its  $\gamma$ -globulin fraction on the mitotic activity of tumor  
cells. Biul. eksp. biol. i med. 60 no.11:96-98 N '65.  
(MIRA 19:1)

1. Laboratoriya neinfektsionnoy immunologii (zav. - prof. I.N.  
Mazekiy) Instituta eksperimental'noy biologii (direktor - prof.  
I.N. Mazekiy) AMN SSSR, Moskva. Submitted June 11, 1964.

SUKH DRUMIN, V.S.

Mikroskop i Teleskop (Microscope and Telescope) izd. 2. Perer Moskva, Gos. izd-vo,  
Tekhniko-Teoreticheskoy Literatury, 1950.  
70 P. Illus., Diagr.

SO: N/5  
613.48  
.S9  
1950



SUKHORUKICH, Vladimir Sergeyevich, kandidat fiziko-matematicheskikh nauk;  
MEZENTSEV, V.A., redaktor; AKHLAMOV, S.N., tekhnicheskii redaktor

[Microscopes and telescopes] Mikroskop i teleskop. Izd. 5-pe.  
Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 62 p. (Nauchno-  
populiarnaya biblioteka, no.31) (MLRA 9:10)  
(Microscope) (Telescope)

24(4)

SOV/51-6-4-18/29

AUTHOR: Sukhorukikh, V.S.

TITLE: Fresnel Diffraction from a Narrow Screen, a Slit and a Semi-Plane for a Non-Spherical Wave (Difraktsiya frenelya ot uzkoogo ekrana, shcheli i poluploskosti pri nesfericheskoy volne)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 523-527 (USSR)

ABSTRACT: Fresnel diffraction from opaque objects with a straight edge (a narrow screen, a slit, a semi-plane) has been studied in detail for a spherical incident wave. The first section of the present paper derives Fresnel diffraction formulae for the three objects listed above for waves whose fronts are close in shape to an elliptical or a hyperbolic paraboloid or a parabolic cylinder. The problem is solved using the usual approximate methods of Huygens. The second section of the paper describes experimental verification of Fresnel diffraction formula for cylindrical waves. Cylindrical waves were produced by means of a collimator and a special cell. The main optical component of the collimator is a meniscus lens of 230 mm diameter and a focal length of 1917 mm. An incandescent lamp was used as the source of light and the collimator slit was 0.02 mm. A light filter was placed in front of the slit; this filter had its transmission maximum at  $5.46 \times 10^{-5} \text{ cm}^{-1}$ . The walls of the cell were in the form of a plane-parallel plate and a

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SOV/51-6-4-18/29

Fresnel Diffraction from a Narrow Screen, a Slit and a Semi-Plane for a Non-Spherical Wave

plano-convex cylindrical lens of K8 glass and 2250 mm radius of curvature. The convex side of the lens was directed inwards, into the cell. The cell was filled with water. The radius of curvature of converging cylindrical waves leaving the cell was 1225 cm. Fig 2 shows a photograph of a diffraction pattern obtained from a narrow screen placed at an angle of  $25^\circ$  to the generating surface of the wave; a typical Fresnel diffraction pattern is obtained. Fig 3 shows that only a geometrical shadow is obtained when a narrow screen is placed at an angle of  $45^\circ$  to the generating surface of the wave. These results confirm the formulae deduced in the first section. Acknowledgment is made to I.V. Obreimov for his advice. There are 3 figures and 2 non-Soviet references (translations from German into Russian).

SUBMITTED: March 22, 1958

Card 2/2

BELOTSEKOVSKIY, S. M.; SUKHORUKIKH, V. S.; TATARENCHIK, V. S. (Moscow)

"Investigation of three-dimensional gas flows on the basis of  
quantitative optical methods"

report presented at the 2nd All-Union Congress on Theoretical and Applied  
Mechanics, Moscow, 29 Jan - 5 Feb 1964.

ACCESSION NR: APh041127

S/0207/64/000/c03/0095/0099

AUTHORS: Belotsarkovskiy, S. M. (Moscow); Sukhorukikh, V. S. (Moscow);  
Tatarenchik, V. S. (Moscow)

TITLE: Determination of the density field of a three-dimensional gas dynamical  
flow by optical methods

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1964, 95-99

TOPIC TAGS: gas flow, gas dynamics, gas density measurement, interferometer

ABSTRACT: A method is described for determining gas densities in a three-dimensional gas dynamical flow by optical measurements. Figure 1 on the Enclosure is a section perpendicular to the direction of the undisturbed gas flow, taken as the  $x$  axis. The disturbed region is contained between the solid (1), whose contour is  $r = r(r)$ , and the outer boundary (2), whose contour is  $R = R(r)$ . In supersonic flow the head shock wave is the outer boundary. The  $z_k$  axis is in the direction of the incident light (wavelength  $\lambda$ ). A particular light ray enters and leaves the disturbed region at the points  $y_k, z_{k1}$  and  $y_k, z_{k2}$  respectively. The maximum values of  $y_k$  for the contours of the solid and the outer boundary are  $h_k$  and  $H_k$ ,  
1/1

SECTION 2.1: AP4001157

respectively. The density in the section  $x = \text{const}$  as a function of the polar angle  $\gamma$  and the dimensionless radial coordinate

$$\xi = \frac{r-l}{R-l}$$

are represented in the form

$$\rho(\xi, \gamma) = \sum_{m=0}^{q-1} \rho_m(\xi) \cos^m \gamma$$

where  $q$  is related to the number of independent values of  $\phi_k$  ( $0 < \phi_k < \pi$ ) used in making the optical measurements. The density can be found from the system of integral equations

$$\sum_{m=0}^{q-1} \int_{z_{k1}}^{z_{k2}} \rho_m(\xi) \cos^m \gamma dz_k = z_{k2} - z_{k1} + e_k m_k(\xi)$$

$$\xi = \frac{y_k - h_k}{H_k - h_k} \quad (k = 1, 2, \dots, q)$$

$$e_k = \frac{\rho_0 \lambda}{\rho_{\infty} (n_0 - 1)}$$

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ACCESSION NR: APh041197

where  $\rho_0$  and  $n_0$  are the density and index of refraction of the gas at standard conditions and  $\rho_\infty$  is the density in the undisturbed current. The function  $m_k(y_k)$  determined by interference measurements expresses the change of the optical path length of light passing through the disturbed region along the chord  $y_k = \text{const}$ . The procedure is illustrated with gas flow (Mach 3.5 and 4.2) about a  $30^\circ$  cone whose axis is inclined  $7\frac{1}{2}^\circ$  away from the direction of the undisturbed flow. Photographs made using an interferometer are shown from which the functions  $m_k$  were determined. Graphs of the gas density as a function of  $\gamma$  and  $\xi$  are presented. Orig. art. has: 23 equations and 8 diagrams.

ASSOCIATION: none

SUBMITTED: 29Feb64

ENCL: 01

SUB CODE: ME

NO REF SOV: 002

OTHER: 001

3/4





СУХОРУКОВ, А.

~~СУХОРУКОВ, А.~~

Comparative economic effectiveness of industrial equipment. Mas.  
ind. SSSR 28 no.3:34-38 '57. (MLRA 10:6)  
(Meat industry--Equipment and supplies)

FEDOROV, N.; SUKHORUKOV, A.; GORBATOV, A.

Economic effectiveness of adopting progressive forms of interopera-  
tional transportation. Mias.ind.SSSR 32 no.2:39-41 '61.

(MIRA 14:7)

(Meat—Transportation)

SUKHORUKOV, A.

The ZPS-100 grain loader for loading corn on the cob. Muk.-elev.  
prom. 28 no.6:13-14 Je '62. (MIRA 15:7)

1. Bayserkenskiy khlebopriyemnyy punkt Alma-Atinskoy oblasti.  
(Grain--Handling machinery) (Corn (Maize)--Transportation)

SUKHORUKOV, A.

Self-propelled piler. Muk.-elev. prom. 29 no.6:25 Je '63.  
(MIRA 16:7)

1. Zamestitel' direktora Bayserkenskogo kukuruzoobrabatyvayushchego  
zavoda.

(Grain-handling machinery)

SUKHORUKOV, A.

The use of a grinder with a 80 liter capacity is not economical. *Mias.*  
ind.SSSR 33 no.5:46-48 '62. (MIRA 15:12)

1. Moskovskiy tekhnologicheskii institut myasnoy i molochnoy  
promyshlennosti.

(Meat grinders)

SUKHORUKOV, A. (Moskva)

Electromechanical voltage regulator. Radio no.2:46 F '64.  
(MIRA 17:3)

AUTHOR: Sukhorukov, A.E. (Engineer). 130-5-3/22

TITLE: A typical blast-furnace with a volume of 2286 m<sup>3</sup> - problems of mechanisation and automation. (Tipovaya domennaya pech' ob'yemom 2286 m<sup>3</sup> - voprosy mekhanizatsii i avtomatizatsii).

PERIODICAL: "Metallurg" (Metallurgist) 1957, No.5, pp.5-8 (USSR).

ABSTRACT: Plans being worked out at the Gipromez Institute for a blast furnace with a useful volume of 2286 m<sup>3</sup> are outlined in this article. The furnace is to operate on a self-fluxing sinter burden, with separate charging of different sizes of materials, with blast enriched with oxygen up to 25% and containing 50 g/normal cubic metre of steam. The blast temperature is to reach 1200 C, the top pressure to 1.5 - 1.8 atm. gauge and the ancillary equipment is designed for a productivity of 5000 tons of pig iron per day (corresponding to the coefficient of utilization of useful volume of 0.46). Both skip and belt charging of materials into the furnace are discussed. For the first, the coke is taken from the bunkers, situated in pairs on either side of the hole over vibrating screens into a weighing hopper and into the skip. Sinter or ore are taken

Card 1/4

A typical blast-furnace with a volume of 2286 m<sup>3</sup> --  
problems of mechanisation and automation (Cont.).  
130-5-3/22  
automatic control and regulation for the projected furnace are the same as for a 1513 m<sup>3</sup> furnace, but there is additional control of blast volume, humidity and temperature in relation to pressure drop through the furnace: when the pressure drop rises by 0.1 atm. the blast humidity is increased by 5 g/m<sup>3</sup> of blast, blast temperature is reduced by 45 C and blast volume is reduced by 100 normal m<sup>3</sup> per min automatically; these changes are reversed when the pressure drop falls. It will be possible to switch from automatic to manual control. The furnace is to be provided with two tap and two slag notches, and the runner is to be provided with a movable spout which will be filling one ladle while the previously filled ladle, standing on a track next to it, is being moved away; the impulse for starting the ladle movement will be provided by the spout changing its position. Coke fines are to be concentrated in special bunkers from which they will be removed in rail wagons. Sand, clay etc. are to be brought to the working platform in special containers.

Card 3/4



AUTHORS: Sukhorukov, A.I. and Arkhipov, I.V. SOV/130-52-7-5/35  
TITLE: The Orsk-Khalilovo Combine (Orsko-Khalilovskiy kombinat)  
PERIODICAL: Metallurg, 1958, Nr 7, pp 12 - 13 (USSR).

ABSTRACT: At the Orsk-Khalilovo Combine, local nickel- and chromium-containing iron ores are used to produce alloy steels. At present, the works are equipped with one blast furnace, one open-hearth furnace, two Bessemer converters, a direct-reduction plant and others. A new blast furnace is due to be blown in on September 30, 1958 and in 1959, two of four sinter strands are to go into production. The combine will be completed in the next few years. The 2 300 rolling mill will be completed; the number of blast furnaces will be increased to 4; the duplex (Bessemer-open-hearth) process will be adopted with three converters and five open-hearth furnaces; two electric furnaces will be provided and the rolling mill will consist of blooming, plate, heavy- and light-section mills. After outlining these developments, the authors name the following distinguished works' personnel:

Card 1/2

In Fifteen Years

SOV/130-58-7-5/35

G.P. Shepelev, N.A. Deryabin, S.F. Dedinkin , P.Ya. Panchenko,  
D.A. Kemonskiy, v.P. Shishkin, A.A. Lebedev and A.D. Kozhevnikov.  
There is 1 photograph.

ASSOCIATION: Orsko-Khalilovskiy metallurgicheskiy kombinat  
(Orsk—Khalilovo Metallurgical Combine)

Card 2/2      1. Alloy steels--Production    2. Steel--Processing    3. Steel  
industry--USSR

SUKHORUKOV, A.M.

Attaching gas pipes, cables and conduits to brick and concrete  
surfaces without using screws. Rats. i izobr. predl. v stroi.  
no.104:27-28 '55. (MLRA 8:11)

(Electric conduits)

SENIN, A.M., inzh.; SUKHORUKOV, A.P., inzh.

Pores in argon-arc welded joints in titanium alloys and measures  
for preventing them. Svar. proizv. 12:24-26 D '63. (MIRA 18:9)

MIKHAYLOV, A.S., inzh.; SLONIMSKIY, Ye.V., inzh.; SEHIN, A.M.,  
inzh.; SUKHORUKOV, A.P., inzh.

Welding of titanium alloys to copper and its alloys. Svar.  
proizv. no.8:1-3 Ag '65. (MIRA 18:8)

**"APPROVED FOR RELEASE: 07/13/2001**

**CIA-RDP86-00513R001653820004-2**

**APPROVED FOR RELEASE: 07/13/2001**

**CIA-RDP86-00513R001653820004-2"**

**"APPROVED FOR RELEASE: 07/13/2001**

**CIA-RDP86-00513R001653820004-2**

**APPROVED FOR RELEASE: 07/13/2001**

**CIA-RDP86-00513R001653820004-2"**

GLAGOLEV, Nikolay Matveyevich; SUKHOBUKOV, A.P., otvetstvennyy red.;  
BAZILYANSKAYA, I.L., red.; TROFIMENKO, A.S., tekhn. red.

[Testing internal combustion engines] Ispytaniya dvigatelei  
vnutrennego sgoraniya. Khar'kov, Izd-vo Khar'kovskogo gos.  
univ. im. A.M. Gor'kogo, 1958. 294 p. (MIRA 11:10)  
(Gas and oil engines—Testing)



L 20731-66 EWA(h)/EEC(k)-2/EWP(k)/EWT(1)/FBD/T IJP(c) WG  
 ACC NR: AP6007230 SOURCE CODE: UR/0056/66/050/002/0474/0486

AUTHOR: Akhmanov, S. A.; Sukhorukov, A. P.; Khokhlov, R. V.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Theory of optical harmonic generation in converging beams

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 2, 1966, 474-486

TOPIC TAGS: laser, nonlinear optics, harmonic generation, second harmonic

ABSTRACT: A theory of nonlinear optical effects at the focus of a <sup>25, 74</sup>converging laser beam is developed by analyzing the evolution of the nonlinear effect in the whole region of the beam rather than the region near the focal plane. The analysis is based on the method of parabolic equations extended to the nonlinear problem, which makes it possible to take into account the diffraction effects. The parabolic equation, which is a solution of the equation for the wave propagation in a nonlinear medium, is then used for a detailed analysis of the second-harmonic generation by a weakly converging cylindrical wave in a medium with a quadratic dependence of polarization on the field intensity of the laser beam. The theoretical data on the intensity and spatial structure of the second harmonics are in good agreement with the available experimental data. It was established that from the energy point of view the optimal focusing is such that one of the semi-axes of the elliptical focal

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L 20731-66

ACC NR: AP6007230

spots of the beam is about equal to the length of the nonlinear sample. The method used can be extended to the analysis of other nonlinear effects, such as parametric amplification and stimulated scattering with the diffraction effects taken into account. Orig. art. has: 44 formulas and 3 figures. [CS]

SUB CODE: 20/ SUBM DATE: 25Aug65/ ORIG REF: 006/ OTH REF: 005/ ATD PRESS: 4223

Card

2/2

L 38194-66 EWT(1)

ACC NR: AP6024890

SOURCE CODE: UR/0056/66/J51/001/0296/0300

AUTHOR: Akhmanov, S. A.; Sukhorukov, A. P.; Khokhlov, R. V.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Development of an optical waveguide during propagation of light in a non-linear medium

SOURCE: Zhurnal eksperimental'noy teoreticheskoy fiziki, v. 51, no. 1, 1966, 296-300

TOPIC TAGS: nonlinear optics, laser theory, self focusing, self trapping, electrostriction, Kerr effect, refractive index

ABSTRACT: The self-trapping of a laser pulse in a nonlinear medium was studied theoretically as a nonstationary problem. The effects associated with the finite duration of the laser pulse were analyzed in detail. The spatial and temporal development of an optical waveguide was considered as the quasi-optic approximation by taking the inertia of the nonlinear properties of the medium into account. The equations for the self-focusing rate, length, and efficiency were derived and discussed in terms of two possible mechanisms of self-trapping: quadratic Kerr effect and electrostriction. Orig. art. has: 12 formulas. [YK]

SUB CODE: 20/ SUBM DATE: 09Feb66/ ORIG REF: 007/ OTH REF: 003/ ATD PRESS:

Card 1/1 JS

L 07274-67  
ACC NR: AP6025278

0  
ized to include an anisotropic medium, and is used to ascertain which diffraction effects in the anisotropic medium are described by the resultant abbreviated equations. The abbreviated parabolic equation is used to consider diffraction of a plane wave by a slit and diffraction of a converging cylindrical wave at the focus. Among the diffraction effects that can be described by the method of slowly varying amplitudes is the transition from the illuminated region to the shadow region, the diffraction of a converging wave in the focus, and others. The analysis of the equations discloses a feature characteristic of the anisotropic medium, namely the asymmetry between the amplitude and phase characteristics of the wave propagation. Among the effects which cannot be described by the parabolic equation, and which are governed by the fact that the wave is actually not plane, are possible aberrations, phenomena occurring near the edges of a screen, and the like. Orig. art. has: 5 figures and 41 formulas.

SUB CODE: 20/    SUBM DATE: 18Jan65/    ORIG REF: 002/    OTH REF: 001

Card 2/2 *pla*

S/653/61/000/000/036/051  
I007/I207

AUTHORS: Gredeskul, A.B., Korotkov, L.I., Lagunov, L.Ya.,  
and Sukhorukov, A.R.

TITLE: Design and operation of caprone automotive  
components

SOURCE: Plastmassy v mashinostroyenii i priborostroyenii.  
Pervaya resp. nauch.-tekhn. konfer. po vopr. prim.  
plastmass v mashinostr. i priborostr., Kiev, 1959.  
Kiev, Gostekhnizdat, 1961, 395-408

TEXT: This is a report of investigations carried out by a  
series of scientific research institutes in co-operation with indus-  
try in order to obtain optimum data for the design and operation of  
automotive components. Results of laboratory and field tests are  
presented and the performance of a series of caprone elements is  
amply described. In the conclusion, suggestions for suitable design  
and operation are made. There are 4 figures.

Card 1/1

ACC NR:

AK6622901

SOURCE CODE: UR/3183/66/000/002/0096/0101

AUTHOR: Gukhorukov, A. R. (Docent); Korotkov, L. I. (Engineer); Gonchar, L. G. (Engineer); Malyshev, A. A. (Engineer) 43 BT/

ORG: Kharkov Automobile-Highway Institute (Khar'kovskiy avtomobil'no-dorozhnyy institut)

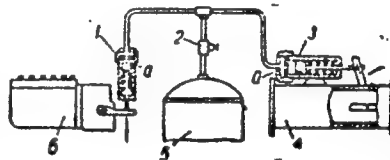
TITLE: Experimental study of the efficiency of automotive diesel exhaust-assisted braking 17

SOURCE: Kharkov, Avtomobil'no-dorozhnyy institut. Avtomobil'nyy transport, no. 2, 1966, 96-101

TOPIC TAGS: ~~automotive industry~~, engine exhaust system, diesel engine, *industrial truck, vehicle component / KrAZ-256 truck*

ABSTRACT: The authors present some of the results from studies carried out at the Kharkov Automobile-Highway Institute and the Kremenchug Automobile Plant on the efficiency of diesel engine exhaust-assisted braking.

KRAZ-256 dump trucks with YaMz-238 four-cycle diesel engines were used throughout the test. The fully equipped truck weighs 1150 kg and has a 10-ton load capacity. An exhaust braking system was produced at the plant to



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L 46124-66

ACC NR: AT6022901

increase the braking effect of the YaMZ-238 engine (see figure). A hollow cylinder (4) with a baffle was attached to a section of the exhaust pipe passing under the cab. The baffle is controlled by the pneumatic cylinder piston (3). A similar pneumatic cylinder (1) was mounted on a bracket in the engine block for shutting off fuel pump (6) delivery. The exhaust braking system is activated by opening a valve (2) located in the cab. This brings compressed air up from the receiver (5) simultaneously to both pneumatic cylinders. Pneumatic system activation time, synchronization of exhaust baffle cutoff and fuel delivery shutoff can be controlled by varying the cross section of the passage  $\alpha$ . All road tests were carried out on asphalt cement highways. The trucks were tested both with and without loading on level stretches and on 3-6% grades. Three operating conditions were tested for each level and graded run: 1. fuel delivery and exhaust baffle shutoff; 2. delivery shutoff with the exhaust baffle open; 3. exhaust baffle shutoff and minimum fuel delivery. The results show that the use of an exhaust pipe baffle in four-cycle diesel engines increases the efficiency of engine-assisted braking. Orig. art. has: 5 figures, 1 table.

SUB CODE: 13/ SUBM DATE: None/ ORIG REF: 002

Cord 2/2 *hh*

SUKHORUKOV, A.Ye.

State Institute for the Planning of Metallurgical Plants. Metallurg  
no.4:7-8 Ap '56. (Blast furnaces) (MIRA 9:9)



SUKHORUKOV, A.Ye., inzhener.

Model blast furnace with a capacity of 2286 m<sup>3</sup>. Metallurg 2 no.5:  
5-8 My '57. (MIRA 10:6)

1. Gosudarstvennyy institut po proyektirovaniyu metallurgicheskikh  
zavodov.

(Blast furnaces)

POZNYAK, I.I.; POPOV, Yu.N.; SUKHORUKOV, A.Ye.

Research on the building of ice-breaking vessels. Probl.  
Arkt. i Antarkt. no. 4:130-138 '60. (MIRA 13:12)  
(Ice-breaking vessels)

SUKHORUKOV, B.; KOZYR', N.

Vladimir Grigor'evich Ukrainskii; on his 70th birthday. Arkh.  
anat., gist. i embr. 44 no.6:124 Je '63.

(MIRA 17:7)

5(3), 24(7)

SOV/51-6-5-13 34

AUTHORS: Sukhorukov, B.I. and Finkel'shteyn, A.I.

TITLE: Optical Studies of the Molecular Structure of Cyanamide and its Derivatives. (Opticheskoye issledovaniye molekulyarnogo stroyeniya tsianamida i ego proizvodnykh) I. The Molecular Structure of Dicyandiamide (I. Molekulyarnoye stroyeniye ditsiandiamida)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 5, pp 637-641 (USSR)

ABSTRACT: The paper reports studies of the infrared absorption spectra of dicyandiamide and deuterodicyandiamide crystals and their silver salts and the Raman spectra of dicyandiamide solutions which were undertaken in order to decide the molecular structure of these compounds. Deuterodicyandiamide was obtained by an exchange reaction with heavy water. The silver salts of dicyandiamide and deuterodicyandiamide were obtained by reaction with silver nitrate in ordinary and heavy water solutions. The infrared absorption spectra were recorded using samples in the form of KBr plates containing small amounts of dicyandiamide and deuterodicyandiamide. The silver salts of dicyandiamide and deuterodicyandiamide were used in the form of a paste suspended in vaseline or fluorinated oil. The Raman spectra were recorded by means of a spectrograph ISP-51 and a light filter which separated out 4358 or 4047 Å. Liquid ammonia was used as the solvent. The absorption

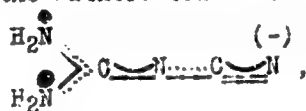
Card 1/3

SOV/51-S-5-13/34

## Optical Studies of the Molecular Structure of Cyanamine and its Derivatives.

## I. The Molecular Structure of Dicyandiamide

spectra of dicyandiamide and deuterodicyandiamide in the region 4000-700  $\text{cm}^{-1}$  are shown in Fig 1. The Raman spectrum of dicyandiamide in ammonia is given in a table on p 639. Cols 1, 2 and 3 of this table list the Raman spectra (in  $\text{cm}^{-1}$ ) of crystalline dicyandiamide (taken from Ref 8), its aqueous solution (taken from Ref 7) and its solutions in liquid ammonia (the authors' results). Fig 2 shows the absorption spectra of crystals of the silver salts of deuterodicyandiamide (curve I) and dicyandiamide (curve II) in the region 4000-800  $\text{cm}^{-1}$ . From all these spectra the authors conclude that dicyandiamide has the structure



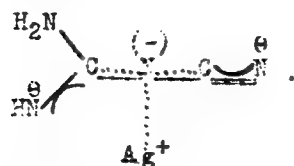
first suggested by Pohl (Ref 4) in 1908. The structure of the silver salt of dicyandiamide is given by

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NOV/51-6-5-13/34

Optical Studies of the Molecular Structure of Cyanamide and its Derivatives.

I. The Molecular Structure of Dicyandiamide



The symbolism used in these structural formulae is that of Finkel'shteyn (Ref 14). There are 2 figures, 1 table and 15 references, 7 of which are Soviet, 4 German, 1 Swiss, 1 English and 2 translations from English into Russian.

SUBMITTED: June 24, 1958

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24(7), 5(4)

SOV/48-23-10-23/39

AUTHORS: Sukhorukov, B. I., Finkel'shteyn, A. I.

TITLE: Spectrophotometric Analysis According to the Method of the "Heterochromatic Zero"

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 10, pp 1230-1232 (USSR)

ABSTRACT: In a previous paper (Ref 1) the simple method of pressing plates from the investigated substance + alkali-halogen layers has already been discussed. The usefulness of this method for the determination of the infrared absorption spectra of the samples has already been proved (Refs 2,3). The present paper discusses the theoretical fundamentals of a quantitative spectrophotometric analysis according to the method of the "heterochromatic zero". As an example, the application of this method for the analysis of a mixture of 1-cyano guanidine  $(H_2N)_2-C=N-C=N$  and melamine in the solid phase is discussed. In the spectrum of the sample three points are selected which have the wavelengths  $\lambda_1$ ,  $\lambda_{st}$ , and  $\lambda_0$ : The first corresponds to the so-called analytical point, the second to the maximum absorption

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SOV/48-23-10-23/39

Spectrophotometric Analysis According to the Method of the "Heterochromatic Zero"

of the inner standard, and  $\lambda_0$  to a point at which the absorption of the component under investigation is small.

$R_i = D_i/D_{st} = \lg \frac{I_i^0}{I_i} / \lg \frac{I_{st}^0}{I_{st}}$  then holds; the  $D$  denote the optical

densities of standard and of the  $i$ -th component,  $I^0$  - the intensities of the incident light, and  $I$  the intensities of the light passing through at  $\lambda_i$  and  $\lambda_{st}$  respectively. Determination of  $I^0$  according to the zero-method is carried out by means of the equation  $I_{st}^0 = aI_0$  and  $I_i^0 = bI_0$ , where  $I_0$  denotes the intensity of the light passing through point  $\lambda_0$ ;  $a$  and  $b$  are constants which depend upon the energy distribution in the spectrum of the light source. After several transformations

$R_i = \frac{1}{D_{st}} \sum_j D_j = \sum_j K_{ij} C_j$  is obtained, where  $C_j$  denotes the concentration of the  $j$ -th component and  $K_i = \varepsilon_i / \varepsilon_{st} C_{st}$ ,  $\varepsilon$  is a

constant. Finally new constants ( $A$  and  $B$ ) are introduced by the ratios of the logarithms of intensity ratios, and by means of them the correction function is set up. Finally the analysis

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SOV/48-23-10-23/39

Spectrophotometric Analysis According to the Method of the "Heterochromatic Zero"

of dicyan amide in melamine is discussed. Such an analysis takes 1.5 and 2 hours. The heterochromatic zero method is suited not only for the analysis of solid substances pressed into the form of plates, but also for the analysis of liquids (in thin layers). There are 1 figure and 4 Soviet references.

ASSOCIATION: Dzerzhinskiy filial Nauchno-issledovatel'skogo i proyektnogo instituta azotnoy promyshlennosti (Dzerzhinsk Branch of the Scientific Research and Planning Institute of the Nitrogen Industry)

Card 3/3

SUKHORUKOV, B.I.; FINKEL'SHTEYN, A.I.

Optical investigation of the molecular structure of cyanamide  
and its derivatives. Part 3. Opt.1 spektr. 9 no.1:46-50  
J1 '60. (MIRA 13:7)

(Cyanamide)

5.3830

15.8540 ~~625~~

27572

S/190/61/003/009/007/016  
B110/B101

AUTHORS: Khaletskiy, M. M., Sukhorukov, B. I.

TITLE: Polymerization of methyl methacrylate in a strong electric d-c field

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 9, 1961, 1347-1351

TEXT: The purpose of the present paper is to study the polymerization of methyl methacrylate (MMA) in a strong electric d-c field. According to K. V. Filippova (Izv. AN SSSR, ser. fiz., 22, 343, 1958) solid polymethyl methacrylate (PMMA), which is placed between flat electrodes, heated to  $\sim 150^{\circ}\text{C}$ , and arranged in an electric field of  $\sim 10$  kv/cm, becomes a permanently magnetic electret which retains its electric state for some methods at room temperature. The intention of the authors was: (a) to prepare a PMMA electret during MMA polymerization; (b) to study the dichroism of the vibrational absorption bands in the IR spectrum of the PMMA electret formation in order to determine the orientation of polar groups; (c) to compare the polymerization of MMA in a strong electric field

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with the polymerization without a field. MMA was polymerized at 70°C in the electric field  $E = 9 \text{ kv/cm}$  in the presence of 1% benzoyl peroxide in order to form an electret. This was performed in a condenser with flat Al electrodes with 70 mm diameter and an interelectrode distance  $d = 1.8 \text{ mm}$ . After disconnecting the field and cooling down to room temperature, the electret charge was measured on an electrometer by the method of depolarization. Dichroism was studied on an ИКС-11 (IKS-11) spectrometer with ЭППВ-51 (EPPV-51) recorder. A polarization attachment according to G. I. Distler, K. P. Bondarenko, G. F. Dobrzanskiy (Ref. 11: Pribery i tekhnika eksperimenta, 1957, no. 6, 106) was used. For the 40-70  $\mu$  thick PMMA films which were mounted on stops of 8 mm diameter, the direction of electret formation was perpendicular to the incident light beam. The PMMA films were formed between two Ni electrodes. Between these electrodes there was a stack of plate glass with mica on the edges (40-70  $\mu$  distance between the plates). MMA was polymerized in the presence of 0.5% benzoyl peroxide at 65°C in a 17 kv/cm field. The film thickness checked by means of an ИЗВ-1 (IZV-1) thickness gauge varied 10% per  $\text{cm}^2$ . No dichroism and, thus, no "frozen" orientation of polar groups was found in the PMMA electret. Voltage was applied to the 10.30  $\text{mm}^2$  Ni electrodes of the test vessel of the apparatus (Fig. 2), the electrodes of the control vessel

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polymerization. The activation energy of the process was determined from the Arrhenius equation to be  $E = 17.4$  kcal/mole, that is near its value for the MMA polymerization ( $E = 19.5$  kcal/mole). The authors refer to the analogous result obtained by R. W. Warfield (see below) for the activation energy of diallyl phthalate polymerization. The authors thank L. A. Blyumenfel'd for his interest in this work. There are 5 figures and 13 references: 5 Soviet and 8 non-Soviet. The three most recent references to English-language publications read as follows: Ref. 1: R. W. Warfield, M. C. Petree, J. Polymer, Sci., 37, 305, 1959; Ref. 2: J. A. Aukward, R. W. Warfield, M. C. Petree, *ibid.*, 27, 199, 1958; Ref. 7: S. D. Chattergee, T. C. Bhadra, Indian J. Phys., 32, 281, 1958.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics AS USSR)

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Fig. 2. Diagram of the assembly. Legend: (1) thermostat; (2), (3) differential thermocouples; (4) electrodes; (5) M-139 (M-139) microammeter; (6) static kilovoltmeter; (7) high-tension rectifier.

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~~Skorokov, G. A.~~  
SUKHORUKOV, B. I.

PHASE I BOOK EXPLOITATION

SOV/6181

Ural'skiye soveshchaniye po spektroskopii. 3d, Sverdlovsk, 1960. Materialy (Materials of the Third Ural Conference on Spectroscopy) Sverdlovsk, Metallurgizdat, 1962. 197 p. Errata slip inserted. 3000 copies printed.

Sponsoring Agencies: Institut fiziki metallov Akademii nauk SSSR. Komissiya po spektroskopii; and Ural'skiy dom tekhniki VSNTO.

Eds. (Title page): G. P. Skornyakov, A. B. Shayevich, and S. G. Bogomolov; Ed.: Gennadiy Pavlovich Skornyakov; Ed. of Publishing House: M. L. Kryzhova; Tech. Ed.: N. T. Mal'kova.

PURPOSE: The book, a collection of articles, is intended for staff members of spectral analysis laboratories in industry and scientific research organizations, as well as for students of related disciplines and for technologists utilizing analytical results.

COVERAGE: The collection presents theoretical and practical problems of the application of atomic and molecular spectral analysis in controlling the chemical composition of various materials in ferrous and nonferrous metallurgy, geology, chemical industry, and medicine. The authors express their thanks to G. V. Gchentsova for help in preparing the materials for the press. References follow the individual articles.

Materials of the Third Ural Conference (Cont.)	SOV/6181
Finkel'shteyn, A. I., B. I. Sukhorukov, T. M. Korniyenko, and Yu. I. Mushkin. Utilization of acid and alkali properties for spectrophotometric analysis of amino- hydroxy compounds by means of ultraviolet spectra	168
Finkel'shteyn, A. I. Spectral determination of composi- tion and structure of melamine pyrolysis products	171
Korobkov, V. S. Spectroscopic manifestations of inter- molecular hydrogen bonds	174
Kolobova, V. N., and V. V. Zharkov. Quantitative determina- tion of residual monomers in polystyrene by ultraviolet absorption spectra	178
Ledentsov, Yu. K., and E. N. Borodina. Absorption spectra of blood serum under the effect of ionizing radiation and low temperature	180

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LYSTSOV, V.N.; SUKHORUKOV, B.I.; BLYUMENFEL'D, L.A.; MOSHKOVSKIY, Yu.Sh.;  
PETUKHOV, V.A.

Spectroscopic study of deoxyribonucleic acid in the absorption  
band of 200 millimicrons. Biofizika 7 no.6:662-663 '62.  
(MIRA 17)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.



SUKHORUKOV, B.I.

Optical properties and molecular structure of nucleic acids and their components. Pt. I: Infrared spectra and molecular structure of cytidine and cytidylic acid in the solid phase at different pH values. Biofizika 7 no.6:664-674 '62.  
(MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

SUKHOBUKOV, B.I.; MATKHANOV, G.I.

Specific interaction of purines and pyrimidines in the nucleic acid chain. Biofizika 8 no.1:131-132 '63. (MIRA 17:8)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.

ACCESSION NR: AT4033999

maximum decline and an intensity of  $\sim 10^{19}$  spin/g substance. The preparation of solid phase polycrystalline samples is described in detail and the supposition is made that the signal is caused by local paramagnetic centers of a radical or ion-radical nature.

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OTHER: 000

Card 2/2

SUKHORUKOV, B.I.; POLTEV, V.I.

On the theory of tautomerism of complex systems. Izv. AN SSSR. Ser.  
khim. no.8:1357-1364 Ag '63. (MIRA 16:9)

1. Institut khimicheskoy fiziki AN SSSR.  
(Tautomerism)